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APPLICANT: COPPOLA, Giuseppe

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TITLE: INTERFEROMETRIC SYSTEM FOR THE SIMULTANEOUS MEASUREMENT OF THE INDEX OF REFRACTION AND OF THE THICKNESS OF TRANSPARENT MATERIALS, AND RELATED PROCEDURE

Amendment A: CLAIM AMENDMENTS

Claims 1 - 12 (canceled). Please cancel Claims 1 - 12 and substitute Claims 13- 19 therefor as follows.

13. (new) A system for measuring an index of refraction and a thickness of a transparent material, the system comprising:

- a laser source suitable for producing an emission;
- a power supply connected to said laser source;
- a collimator cooperative with said laser source so as to collimate the emission of said laser source;
- a sample of the transparent material;
- a rotating stage supporting said sample thereon at a select angle with respect to the collimated emission of said laser source;
- a photodiode means positioned on an opposite side of said rotating stage from said laser source, said photodiode means for receiving the collimated emission as passed through said sample;
- a oscilloscope means connected to said photodiode means, said oscilloscope

means for producing an interferometric signal from the collimated emission received by said photodetector means;

a control bus electrically connecting said oscilloscope means to said power supply; and

a computing means connected to said control bus, said computing means for varying a wavelength of the emission of said laser source through said power supply, said computing means for determining a measurement of an optical path of the collimated emission of said sample so as to determine a thickness of said sample, said computing means being a personal computer.

14. (new) The system Claim 13, said sample being of a homogeneous material having a planar and parallel faces.

15. (new) The system of Claim 13, said sample positioned vertically on said rotating stage, said sample having a surface facing said laser source.

16. (new) The system of Claim 13, said emission of said laser source passing through said sample so as to produce reflections and refractions within said sample, said interferometric signal corresponding to the reflections and refractions.

17. (new) The system of Claim 13, said computing means for measuring the optical path by evaluating said interferometric signal obtained by varying an angle of incidence for a respective varied wavelength of the emission from said laser source.

18. (new) The system of Claim 17, said computing means for determining the index of refraction by analyzing the interferometric signal relative to the angle of incidence for a particular wavelength of the emission of said laser source.

19. (new) A method of measuring an index of refraction and a thickness of transparent material comprising:

providing a support that houses the transparent material;

placing said support on a rotating stage;

traversing a coherent and monochromatic light beam through the transparent material so as to cause various reflections at interfaces within the transparent material so as to create an interference signal;

obtaining an optical path from an observation of a phase variation of the interference signal following a variation of the wavelength of the coherent and monochromatic light beam;

obtaining the index of refraction from the optical path and the observation of the interference signal obtained for each fixed wavelength of the coherent and monochromatic light beam; and

determining the thickness of the transparent material from the index of refraction and the optical path.